Appendix N

Soils Monitoring

Item	*Location*	*Technique*	*Unit of Measure*	*Frequency and Duration*	*Remedial Action Trigger*	*Management Options*
Soil erosion, uplands	Area-wide where management activities are occurring or expected to occur.	Visual observation, rangeland health or proper functioning condition assessments, surface aggregate stability test, and surveyed erosion pins.	Soil loss in tons per acre.	Site will be visually examined quarterly. Where erosion is deemed excessive, measurements of site characteristics will be taken to determine rate of soil loss.	Visual evidence of pedestal, terracete, wind scour, rill, gully, or sheet erosion. Change in surface aggregate stability class. Loss of soil exceeding 10 T/ac/yr.	Report exceedance to BLM, State or EPA. Enforcement action will be taken.
Soil erosion, streambanks, riparian areas, and floodplains	Area-wide along rivers and tributaries where management activities are occurring or expected to occur.	Visual observation, rangeland health or proper functioning condition assessments, and surveyed erosion pins.	Area affected in square feet or acres.	Site will be visually examined quarterly. Where streambank erosion is deemed excessive, measurements of site characteristics will be taken to determine soil loss.	Visual evidence of headcut or bank slump. A 10% increase in streambank loss.	Report exceedance to BLM, State or EPA. Enforcement action will be taken.
Soil salinization and sodification	Area-wide where management activities are occurring or expected to occur.	Visual observation, measurement of soil characteristics such as EC, SAR, ESP, pH.	Area affected in square feet or acres.	Site will be visually examined quarterly. Where salinity levels show an increase because of vegetation or soil effects, measurements of site characteristics will be taken to determine salinity and sodicity levels.	A 20% increase in levels. EC greater than 8, SAR greater than 8, ESP greater than 10, or pH greater than 8.5	Report exceedance to BLM, State or EPA. Enforcement action will be taken.
Compaction	Area-wide where management activities are occurring or expected to occur.	Visual inspection, penetrometer, or ratio of penetration resistance or bulk density to that of the reference area.	Pounds per square inch, mass per volume.	Site will be visually examined 1 to 2 times yearly. Where compaction is deemed excessive, measurements would be taken.	10% increase in density. Ratio of penetration resistance or bulk density to that of the reference area greater than 1.	Limit or block access to compacted sites.
Rutting	Area-wide where management activities are occurring or expected to occur.	Visual observation and measured depth of rut.	Inches.	Site will be visually examined 1 to 2 times yearly. Where rutting is deemed excessive, measurements would be taken.	Ruts exceed 4 inch depth.	Limit or block access to rutted sites.

Item	***Location***	***Technique***	***Unit of Measure***	***Frequency and Duration***	***Remedial Action Trigger***	***Management Options***
Productivity	Areas where reclamation or restoration is occurring or expected to occur.	Visual observation, line-point intercept, gap intercept, and aggregate stability test, Total dry-weight production of vegetation.	Proportion of area, time to percent dissolved, dry weight per area.	Site will be visually examined 1 to 2 times yearly. Where fertility is deemed poor, measurements would be taken.	10% increase in percent of bare ground. Change in surface or subsurface aggregate stability class. 10% decline in total dry weight.	
Subsidence of fill material	Areas where management activities require fill material.	Visual observation and measured depth of subsidence.	Feet.	Site will be visually examined 1 to 2 times yearly. Where slumping/piping is deemed excessive, measurements would be taken.	10% increase in slumping or piping depth.	Limit or block access to affected sites until area is reclaimed.